

## ETCHING METHODS AND APPARATUS AND SUBSTRATE ASSEMBLIES PRODUCED THEREWITH

### Abstract of the Disclosure

5           Methods and apparatus for etching substrates such as silicon  
wafer are provided. In one specific approach, a surface of the  
substrate assembly is covered with a resist that is patterned to define  
features to be etched. In this approach, the surface is then exposed to  
a plasma in a plasma etcher so that surface areas not covered with the  
10   resist are etched, while the thickness of the resist increases or etches at  
a rate that is at least ten times slower than that of the exposed areas of  
the surface. This etching process can be followed with a conventional  
plasma etch. By combining the etching that increases the resist  
thickness with the conventional etching of resist in which the resist  
15   thins during etching, features having high aspect ratios can be etched.

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